Impacts of Parental Resources on Child Educational Outcomes:

Assets and Mediating Pathways

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Statement of the Research Problem

A low level of educational attainment often translates into less income and unstable employment in the labor market over the life course. This is increasingly true in a global economy that requires more sophisticated training and education. Although educational attainment levels have increased during the last few decades, researchers and policymakers are concerned that disparity in educational attainment mirrors unequal distribution of economic resources.

The common wisdom is that investment in better schooling will bring high returns in the form of future earning potential, and most parents would gladly allocate money to improve their children's human capital (Becker, 1979, 1993; Haveman & Wolfe, 1994). However, families with limited economic resources often face borrowing constraints, especially when financing post-secondary education, because of uncertainty in an imperfect capital market whether future earnings compensate for the borrowing money (Ellwood & Kane, 2000; Kane 1994, 1996).

Traditional models of intergenerational transmission of economic resources have focused mainly on parents' income as a representation of parental resources. However, scholars have begun to pay more attention to the roles of parental assets in children's educational attainment (Caner & Wolff, 2004; Conley, 2001; Nam & Huang, 2009; Oliver & Shapiro, 1997; Sherraden, 1991; Williams Shanks, Kim, Loke, & Destin, 2010; Zhan & Sherraden, 2003, 2009). Assets appear to predict educational attainment independently from income; moreover, assets may encourage economic and social development of individuals in the family beyond consumption (Paxton, 2001; Sherraden, 1991).

While parents' economic status is evidently crucial, it alone cannot explain total variations in children's educational outcomes. Recent academic work poses questions about how other (usually unmeasured) characteristics may mediate the ways in which parental economic status affects children's educational outcomes (Mayer, 1997; Orr, 2003; Williams Shanks, 2007; Williams Shanks, Kim, Loke, Destin, 2010; Yeung & Conley, 2008; Zhan, 2006; Zhan & Sherraden, 2003). It matters how parents allocate diverse forms of resources and attention to children. Likewise, children's attitudes and behaviors are important factors in determining educational outcomes, and these may be largely formed by parental influence.

However, there is still no consensus on how assets may contribute to children's educational attainment. It is unclear how different types of parental economic resources work for different kinds of educational attainment. Another limitation of previous research is that mediating pathways are more likely to be investigated with educational achievement (measured by test scores or GPA) than with educational attainment (measured by levels of completed education). Overall, there are mixed findings on mediating effects by type of mediators, children's age, and form of educational outcomes.

Research Background and Hypotheses

The study poses the following questions. First, what types of parental economic resources are associated with children's educational attainment? Second, do impacts of parental economic resources on educational milestones vary by type of educational attainment?: high school drop-out experience, high school completion, college attendance, and college degree attainment. Third, does parental involvement, children's educational expectations, or children's self-esteem mediate the effects of parental economic resources on children's educational attainment?

Effects of parental economic resources on children's outcomes have been studied in many research fields theoretically and empirically. While most empirical findings measure the effect of parents' income, there is only limited scholarship identifying possible mediating pathways in children's educational attainment. In addition, more research is needed on the relationship between parental assets and children's outcomes, including identifying mediating pathways in educational attainment. To address these limitations of current research, this study proposes a conceptual model incorporating parental assets and mediating pathways into the income-child educational outcome model.

First of all, this study aims to examine effects of assets on child's educational attainment, along with income. We need to broaden our understanding of distinctive roles of parent's assets, rather than income, in explaining children's attainment at all educational milestones. The research agenda can articulate how income and assets play

different roles in children's outcomes. This approach addresses the limitations of income measurement to reflect parents' economic status by introducing assets as an alternative measure of parents' economic resources that complements income measures. This approach is also in line with more recent research that, due to rising costs of higher education and other extra demands in educating child, has expanded the traditional educational attainment model by paying particular attention to the role of wealth (Conley, 2001; Cha, Weagley, & Reynolds, 2005; Morgan & Kim, 2006; Nam & Huang, 2009; Zhan & Sherraden, 2003; Zhan & Sherraden, 2009). Thus, this study attempts to stimulate research on the intergenerational effects of parental economic status by taking parental assets into account.

Second, this study investigates different effects of various assets and liabilities. Diverse forms of assets and liabilities can lead to different impacts on each educational milestone attained by children, but there is little consensus on how different types of assets make a contribution to parental investment in children's educational outcomes. In this study, asset measures include net worth, financial assets, non-financial assets, homeownership, and liabilities measures include unsecured and secured debts.

Third, in addition to considering various types of parental assets and liabilities, this study raises a question of whether the impact of parental economic resources can vary across different types of educational attainment. Post-secondary education, for example, requires more financial investment compared to high school education. Also, factors influencing one type of educational attainment—high school graduation, for example—may differ from those influencing other milestones, such as high school dropout.

When considering various types of parental assets and liabilities on various educational milestones, it is important to measure outcomes that are appropriate for each stage of childhood. In general, educational outcomes can be categorized into two domains, educational achievement and educational attainment. Educational achievement is measured by standardized test scores or school readiness while education attainment is measured by years of schooling or achievement of educational milestones like college graduation that predict future economic success in occupational status and earning (Haveman & Wolff, 1994; McLanahan & Sandefur, 1994). Brooks-Gunn and her colleagues (1997) find that appropriate development outcomes for children younger than five are proper health care and intelligence development, whereas appropriate outcomes for children over the age of five are school achievement and social-behavior problems. Depending on the ages of children in studies, appropriate standardized test scores are often used to measure academic outcomes for school-aged children, while educational attainment measures are used for young adults.

This study focuses on educational attainment during young adulthood. Four educational events are selected as main educational outcomes of interest: ever dropped

out of high school, high school completion, college attendance, and college degree attainment. The same sample is followed for several years to see if parental economic resources have different effects on the educational milestones.

Fourth, this study aims to examine potential mediating mechanisms, along with parental economic resources, to account for children's educational outcomes. Mediating effects of social-psychological characteristics of parents and child have been still uncovered. Also, previous studies have investigated the mediating pathways for limited ranges of educational outcomes, such as academic achievement measured by test scores or high school graduation. The mediating pathways need to be tested to find out whether they are consistently supported across different educational outcomes from high school dropout to college degree attainment.

In sum, the link from parental economic resources to children's educational outcomes in the study conceptual model indicates a direct impact of parental economic status, while the links from parental economic resources to three mediating mechanisms to child educational outcomes indicate indirect impacts. The former link tests economic resource perspectives and the latter examines mediation effects of non-financial parental inputs and child characteristics in children's educational attainment. Building on both perspectives together, this proposed model will contribute to wider knowledge on children's educational attainment.

Methodology

Data and Sample

Data come from two sources in the National Longitudinal Survey of Youth 79: (1) NLSY79 main and (2) NLSY79 Child/Young Adults (NLSY79 Child/YA). Variables related to characteristics of the mother and family are drawn from the NLSY79 main data, and the other variables from the NLSY Child/YA data. The NLSY79 data is chosen because (1) the multi-year longitudinal data enable the examination of educational trajectory and details in school-related performance from younger childhood to young adulthood; (2) the data provide information on diverse measures of parental wealth; (3) rich assessments on child development reported by both mother and child are available.

This study intends to focus on educational attainment from a beginning in high school. Thus, the sample consists of students who had just entered high school and follows them across time to see whether each educational outcome of interest is attained. The study sample, drawn from the NLSY79 and NLSY79 Child/YA data, consists of children who were enrolled as 9^{th} and 10^{th} graders in 1996 or 1998. Although students in 10^{th} grade are generally not considered an entering high school class, they are included in the two cohorts because they are assumed to have been enrolled as 9^{th} graders in 1995 or 1997 when NLSY79 data was not collected due to the biennial cycle of data collection.

The sample is selected from two different years, not to compare cohorts, but for the purpose of drawing more sample cases.

In sum, this study draws its full sample, based on two high school class grades in 1996 and 1998. The final sample includes 632 children[1], 305 from children sampled in 1996 data and 327 from those sampled in 1998 data. The same number of cases, 632, is used for all the analyses.

Measurement of Variables

Dependent variables of interest are educational attainment indicators: *ever dropped out of high school*, *high school completion*, *college attendance*, and *college degree attainment*, which are measured by whether a child had reached a particular level of educational attainment between 1996 and 2004 for children drawn from the 1996 data, or between 1998 and 2006 for children drawn from the 1998 data. The dependent variable of high school dropout status used in this study does not necessarily mean a permanent leave from high school. It indicates whether a respondent has ever dropped out of high school since either 1996 or 1998, so those who left school may return to the regular school system later.

Main independent variables are parental economic resources: *family income*, four types of parental assets (*net worth*, *gross financial assets*, *gross non-financial assets*, and *homeownership*), and two types of liabilities (*unsecured* and *secured debt*). Because distributions of the financial resources are quite skewed, all of the continuous economic measures (except home-ownership) are log-transformed in the regression analyses. Each value is also inflation-adjusted to 1998 dollars using the Consumer Price Index[2]. Assets and liabilities are obtained from the data collected in either 1996 or 1998 respectively when child is a 9th or 10th grader.

Three variables are included to examine a possible mediating role in the effects of parental economic resources on child's educational attainment: *parental involvement in child's education*, *child's educational expectations*, and *child's self-esteem*. *Parental involvement* in child education is measured by 15 items on a 4-point Likert scale (0=Never, 1=Rarely, 2=Sometimes, 3=Often). The items regard at-home involvement in child's academic work, home supervision by rules, and communicating about child's school activities. *Child's educational expectations* are measured by a question asking "what is the highest grade or year you think you will actually complete?" The survey design allows children to report a grade or year ranging from 1st grade (=1) to more than 5 years of college (=18). This variable, which measures "the highest grade respondent *thinks* he/she will complete" is different from the child's educational aspirations, which reflect "the highest grade respondent would *like* to complete." Child's global level of *self-*

[1] About 12% of the children are from the same mother: 555 mothers for 632 children.
[2] Retrieved from ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt.

esteem is measured by the Rosenberg self-esteem scale (Rosenberg, 1965). This scale consists of ten items on a four-point scale from strongly disagree (=1) to strongly agree (=4).

A number of other characteristics of mother and child are also included as control variables: demographic and socioeconomic characteristics of child, mother, and family; child's cognitive ability; and child's high school quality. Most of the control variables are measured when the child is in the $9^{th}/10^{th}$ grade, but child's cognitive abilities are measured in earlier childhood before the child reaches the age of 15.

Data Analysis Strategies

The main analyses are conducted with a series of weighted logistic regressions. Hypothesized mediating effects are tested by using the regression strategy of Baron and Kenny (1986). Main logistic regression models are analyzed for each educational outcome: ever dropped out of high school (models 1 and 2), high school completion (models 3 and 4), college attendance (models 5 and 6), and college degree attainment (models 7 and 8) respectively. Four models 1, 3, 5, and 7 do not include potential mediators, while the other four models 2, 4, 6, and 8 include them.

Each of models 1-8 has four sub-models (A, B, C, and D) that consider different types of parental economic resources. Model A employs income alone; model B includes income and net worth to take into account the effect of parental assets; model C employs financial assets, unsecured debts, and a dummy indicator of home ownership; model D includes financial assets, non-financial assets, unsecured debts, and secured debts. Using different types of measures of assets and liabilities in models B, C, and D prevent a multicollinearity problem in accounting for the constructs of assets and liabilities.

Results

Summary of Results

Results on the risk of high school dropout are presented in Table 2-1. The probability of having ever dropped out of high school is not associated with family income but negatively and significantly associated with net worth, gross financial assets, homeownership, and secured debts.

In the case of high school completion, as shown in Table 2-2, the income effect on high school completion decreases and becomes insignificant when specific measures of assets and debt are controlled. Instead, the form of financial assets and secured debt—seemingly highly tied to home ownership—are more likely significant predictors.

Table 2-3 demonstrates results of college attendance outcome. In predicting college attendance, once specific assets and liabilities measures are controlled, the significant effect of income disappears, while assets, homeownership, and non-financial

assets remain at least marginally significant. This suggests that the asset effects may outweigh the effects of family income, and that, all else equal, children of parents with more assets may have a higher likelihood of going to college, as found in previous research.

Results of college degree attainment are presented in Table 2-4. In contrast to the high school completion and college attendance models, family income demonstrates a significant relationship with college degree attainment, no matter what types of assets and liabilities are controlled. Also, of parental assets and liability measures, non-financial assets are significant in predicting college degree attainment. Although most families might not be willing to liquidate non-financial assets, the finding is still convincing because families with non-financial assets have a greater ability to borrow money when needed (Cha, Weagley, & Reynolds, 2005; Nam & Huang, 2009; Zhan & Sherraden, 2009), and non-financial assets can be a symbol of higher socio-economic status and economic security.

Child's educational expectations are significantly associated with each educational milestone in the expected direction and act as a mediator in the relationship between net worth/financial assets and high school dropout as well as financial assets and high school completion. Therefore, the significant mediating role played by child's educational expectations supports the possibility that children with lower levels of liquid assets may adjust their educational expectations because of family circumstances, and this shift in expectations, in turn, may discourage children from completing high school or pursuing a post-secondary education.

Child's self esteem is significantly associated with college degree attainment, but a mediating effect via child's self-esteem is not supported. This signals that child's self-esteem might be an important and long-term motivational factor in completing a higher educational degree, although it does not necessarily mediate the effect of parental economic resources. The finding that parental involvement does have a significant mediating effect is not unanticipated. Other quantitative studies find inconsistent relationships between parental involvement and academic achievement of high school students. Previous research has demonstrated that the effect of parental involvement on educational outcomes can vary by child's age, educational outcome measures, conceptual definition of the construct *parental involvement*, and child's academic ability (Barnard, 2004; Fan & Chen, 2001; Keith 1991; Shumow & Miller, 2001).

Discussion

The primary goal of this study is to examine direct effects of parental economic resources on child's educational outcomes and possible mediating mechanisms of parental involvement, child's educational expectations, and child's self-esteem. Findings indicate that family economic resources are significantly predictive of every educational attainment but there are some variations in the effect across the type of outcomes.

Even after controlling for parental assets, family income has a strong and constant impact on college degree attainment, which is consistent with the study by Nam and Huang (2008). Permanent family income may be a precise proxy to represent family economic status so that it could reflect the extent to which family can afford or support child's college completion. Among parental wealth measures, non-financial assets are significant for predicting college degree attainment, which is consistent with the evidence from Zhan's study using the same source of data (2009). Although most families might not be willing to liquidate non-financial assets, the form of assets implies that they have a greater ability to borrow money when needed and in times of economic difficulties (Nam & Huang, 2008; Zhan & Sherraden, 2009), and non-financial assets can be a symbol of higher socio-economic status and economic security. To pay for expensive college education, the ownership of non-financial assets can help families and children achieve a post-secondary degree.

Asset effects are not very strong in predicting college attendance, but it does not mean that these effects are unimportant. Once specific asset and liability measures are controlled for, income's effect on college attendance becomes insignificant; besides, homeownership and non-financial assets show a relatively stronger effect than income. This suggests that family income is partially correlated with financial assets, homeownership, and non-financial assets, and the asset effects may still outweigh the effect of family income. Accordingly, as in the college degree attainment model, the findings suggest that children from parents with more assets in the form of non-financial assets have a higher likelihood of going to college.

The income effect on high school completion is similar to that on college attendance. The income effect decreases and becomes insignificant when specific measures of assets and debts are controlled for. The form of financial assets, however, is a consistently significant factor. More notable findings are with high school dropout models. Strong asset effects are found with the risk of ever dropping out of high school. Net worth, financial assets, homeownership, and debts on non-financial assets are negatively associated with incidence of high school dropout. This evidence illustrates that disadvantaged economic status increases the exposure to high school dropout, although high school education itself is generally much less expensive compared to college education. Literature on high school dropout shows that a large fraction of students (especially those of an racial/ethnic minority) decide to leave school because they feel the need to financially support family through work or take on family responsibility (Rumberger, 1987). Therefore, the significant associations with several types of assets suggest that children from families who possess assets have a lower chance of being tempted or forced to leave school and thus continue to attend high school even in case of a sudden economic crisis.

Secured debts are significantly associated with the risk of high school dropout in the negative direction and with high school completion (and high school diploma) in the positive direction, even though secured debts indicate economic liability. The direction of the relationships, however, is not a complete surprise because secured debts do not necessarily mean economic burden. Other studies note that the presence of secured debts indicates economic power to purchase non-financial assets despite remaining debts (e.g. home mortgages), and that negative impact might be more likely when the value of secured debts exceeds that of non-financial assets (Carasso & McKernan, 2008; Nam & Huang, 2008; Zhan 2009).

The mediating effects of child's educational expectations is supported in the effects of net worth and financial assets on the risk of high school dropout as well as the effects of financial assets on high school completion. Similar to the other hypothesized mediators, the inclusion of child's educational expectations does not greatly change the effects of parental economic resources on the outcomes. Nevertheless, child's educational expectations remain a significant factor for each educational milestone in the expected directions. Even when all of the three hypothesized mediators are included, child's educational expectations stand out as strongly associated with educational outcomes. The effects of net worth and financial assets are reported to work through child's educational expectations, as the significant partial mediating pathways show. In a similar way, financial assets have a significant effect on high school completion through child's educational expectations.

The finding of the mediating effect of child's educational expectations is in line with the reasoning in the integrative model of educational achievement. The comprehensive educational achievement model postulates that distal factors (e.g. family SES, parents' values, or prior achievement) predict positive propensity levels (e.g. child's ability or willingness to learn) and educational opportunities (e.g. school climate, teacher, or courses), and consequently, propensity factors and opportunities result in higher levels of academic achievement (Byrnes & Miller, 2007). Previous quantitative studies have found the mediating effect mostly in terms of child's educational achievement measured by test scores, rather than educational attainment (Elliott, 2009; Zhan, 2006; Zhan & Sherraden, 2003; Zhan & Sherraden, 2009). When children are exposed to available resources, these resources can foster propensity in children to take advantage of learning opportunities and be more motivated to achieve better outcomes. Therefore, the significant mediating role played by child's educational expectations in high school dropout supports the possibility that children with lower levels of assets may adjust their educational expectations because of family circumstances, and this shift in expectations, in turn, may facilitate the decision to leave high school or not to attain high school graduate credentials.

Utility for Social Work Practice

Evidence from this study suggests that parental assets are important resources for children's educational attainment relative to family income, and that this relationship does not change greatly after controlling for non-economic characteristics of parents and children. For applied practice and policy purposes in social work, these results have clear meaning. New policy and program interventions should be considered for low- and moderate-income families who have limited opportunity to accumulate assets but are concerned about education of their offspring.

Child Development Accounts (CDAs) are an emerging research and policy initiative to encourage families to plan ahead and invest in a savings account specifically for their child's future post-secondary education (Mason et al., 2010; Sherraden & Clancy, 2008; Williams Shanks, Kim, Loke, & Mesmin, 2010). CDAs have been tested in the United Kingdom, Canada, South Korea, and Singapore (Loke & Sherraden, 2009), and a large-scale experiment in the United States—SEED for Oklahoma Kids (SEED OK)—examines how a universal CDA model promotes savings for children's education and may influence educational expectations and parenting practices (Sherraden, & Stevens, 2010; Zager et al., 2010). Without such innovative interventions to meet their specific needs, children's futures will be jeopardized. Much more research and policy should pay attention to asset-building work to embrace more children into minimizing negative effects of economic disparities and developing their potential.

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[Appendix]

Table 1. Descriptive Statistics of Variables (Weighted; Unweighted N=632)

Variables	Mean or percentage
Dependent variables	
Ever dropped out of high school (%)	17.37
High school graduate (%)	90.76
Ever enrolled in college (%)	61.23
College degree attainment (%)	19.91
Independent variables (in 1998 dollars)	
Family Income (mean, $)	45,754.78
Parental Assets	
Net worth (mean, $)	79,463.43
Financial assets (mean, $)	16,299.48
Non-financial assets (mean, $)	98,018.43
Home ownership (%)	65.90
Parental Liabilities	
Unsecured debts (mean, $)	4,331.26
Secured debts (mean, $)	46,893.66
Mediating variables	
Parental involvement in child education (mean)	27.91
Child's educational expectation (mean, year/grade)	14.95
Child's self-esteem (mean)	32.47
Control variables	
Child age (mean, year)	15.93
Child gender (1=Female, %)	47.65
Child race (%)	
Non-African-American, non Hispanic	67.65
African-American	20.31
Hispanic	12.04
Child's cognitive ability (mean)	
PIAT Math	101.25
PIAT Reading Recognition	104.56
PIAT Reading Comprehension	98.62
School quality (mean)	25.09
Birth order	
1 (%)	60.77
2 (%)	28.87
3 or more (%)	10.36
Family size (mean)	4.46
Mother's age (mean, year)	36.85
Mother's marital status (%)	
Unmarried	28.50
Currently married	71.50
Mother's education (%)	
No high school	11.33
High school	53.63
Some college or higher	35.04
Residence (1=Urban, %)	68.64

Table 2-1. Ever Dropped Out Of High School (weighted)

	A		B		C		D	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Income (log)	0.878	0.888	0.951	0.956	1.129	1.137	1.244	1.289
Assets								
Net worth (log)			**0.675***	**0.697***				
Financial assets (log)					**0.915***	**0.923***	0.950	0.963
Non-financial assets (log)							0.922	0.915
Homeownership (1=yes)					**0.367****	**0.349****		
Liabilities								
Unsecured debts (log)					1.022	1.022	1.051	1.052
Secured debts (log)							**0.880****	**0.874****
Parental involvement in education		1.008		1.006		1.004		0.997
Child's educational expectations		**0.843***		**0.861***		**0.849***		**0.841***
Child's self-esteem		0.993		0.987		0.996		0.990
Child age	0.960	0.907	0.886	0.849	0.916	0.866	0.893	0.839
Child gender (male)								
Female	0.847	0.856	0.799	0.809	0.917	0.940	0.793	0.801
Child race (Non-African American, Non-Hispanic)								
African-American	0.780	0.820	0.774	0.813	0.566 ψ	0.599 ψ	**0.467***	0.492 ψ
Hispanic	1.678	1.694	1.457	1.459	1.442	1.425	1.345	1.311
Child cognitive ability								
PIAT Math	**0.973***	0.976 ψ	**0.974***	0.976 ψ	0.981	0.983	0.976 ψ	0.978
PIAT Reading Recognition	1.000	1.002	0.998	1.000	0.998	0.999	1.001	1.002
PIAT Reading Comprehension	0.984	0.987	0.984	0.987	0.980	0.984	0.979	0.983
School quality	**0.891****	**0.895***	**0.882****	**0.888****	**0.888****	**0.895***	**0.882****	**0.893***
Birth order	1.178	1.169	1.173	1.168	0.116	0.120	1.198	1.223
Family size	0.897	0.883	0.876	0.861	0.859	0.845	0.838	0.816
Mother's age	0.919	0.948	0.928	0.952	0.935	0.964	0.910	0.933
Mother's marital status (unmarried)								
Married	1.210	1.268	1.233	1.288	1.674	1.760	2.157 ψ	2.298 ψ
Mother's education (No high school)								
High school graduation	0.646	0.667	0.605	0.625	0.679	0.707	0.913	0.985
Some college	**0.355***	0.385 ψ	**0.300***	**0.326***	**0.351***	0.375 ψ	0.518	0.583
Residence (rural)								
Urban	**2.312***	**2.247***	**2.240***	**2.178***	**2.154***	**2.097***	**2.045***	1.960 ψ
Likelihood Ratio χ^2	74.897***	86.028***	82.417***	92.259***	99.544***	110.706***	101.302***	113.263***

Note: Figures for each variable are odds ratio. Category value in parentheses indicates a reference group, unless indicated otherwise. "Log" in parentheses indicates that the continuous measures are log-transformed. *** p<0.001, ** p<0.01, * p<0.05, ψ p<0.1

Table 2-2. High School Completion (weighted)

	A		B		C		D	
	Model 3	Model 4	Model 3	Model 4	Model 3	Model 4	Model 3	Model 4
Income (log)	**2.164****	**2.232****	**2.149****	**2.240****	1.506	1.542	1.366	1.300
Assets								
Net worth (log)			1.037	0.985				
Financial assets (log)					**1.165***	1.139 ψ	1.134 ψ	1.087
Non-financial assets (log)							0.939	0.968
Homeownership (1=yes)					0.903	1.039		
Liabilities								
Unsecured debts (log)					1.004	0.999	0.983	0.967
Secured debts (log)							1.117 ψ	**1.143***
Parental involvement in education		1.004		1.004		1.005		1.011
Child's educational expectations		**1.578*****		**1.579*****		**1.540*****		**1.573*****
Child's self-esteem		0.929		0.929		0.928		0.931
Child age	1.181	1.538	1.182	1.537	1.190	1.527	1.121	1.436
Child gender (male)								
Female	1.591	1.601	1.595	1.599	1.416	1.415	1.501	1.549
Child race (Non-African American, Non-Hispanic)								
African-American	1.283	1.073	1.282	1.074	1.325	1.123	1.333	1.222
Hispanic	0.611	0.561	0.614	0.560	0.610	0.561	0.600	0.608
Child cognitive ability								
PIAT Math	1.010	1.007	1.010	1.007	1.006	1.005	1.002	1.004
PIAT Reading Recognition	**1.040***	1.039 ψ	**1.040***	1.039 ψ	**1.044***	1.043 ψ	**1.047***	**1.044***
PIAT Reading Comprehension	1.028	1.026	1.028	1.027	1.024	1.022	1.023	1.024
School quality	1.063	1.067	1.063	1.067	1.054	1.055	1.066	1.058
Birth order	**0.496****	**0.530****	**0.496****	**0.530****	**0.516****	**0.547****	**0.513****	**0.516****
Family size	1.214	1.227 ψ	1.213	1.227 ψ	1.278 ψ	1.280 ψ	1.278 ψ	1.308 ψ
Mother's age	1.191 ψ	1.101	1.191 ψ	1.101	0.189 ψ	1.095	1.201 ψ	1.118
Mother's marital status (unmarried)								
Married	0.876	0.792	0.876	0.792	0.846	0.805	0.767	0.701
Mother's education (No high school)								
High school graduation	1.843	1.537	1.850	1.534	1.716	1.428	1.413	1.046
Some college	**3.509***	2.507	**3.530***	2.496	3.087 ψ	2.271	2.512	1.628
Residence (rural)								
Urban	0.652	0.627	0.653	0.626	0.641	0.614	0.723	0.706
Likelihood Ratio χ^2	113.911***	130.947***	114.058***	130.956***	121.450***	137.078***	127.303***	146.245***

Note: Figures for each variable are odds ratio. Category value in parentheses indicates a reference group, unless indicated otherwise. "Log" in parentheses indicates that the continuous measures are log-transformed. *** p<0.001, ** p<0.01, * p<0.05, ψ p<0.1

Table 2-3. College Attendance (weighted)

	A		B		C		D	
	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6
Income (log)	**1.781****	**1.742****	**1.548***	1.532 ψ	1.409	1.377	1.296	1.237
Assets								
Net worth (log)			1.635	1.589				
Financial assets (log)					1.063 ψ	1.051	1.052	1.035
Non-financial assets (log)							1.111 ψ	1.121 ψ
Homeownership (1=yes)					1.665 ψ	**1.921***		
Liabilities								
Unsecured debts (log)					1.026	1.026	1.020	1.018
Secured debts (log)							1.008	1.023
Parental involvement in education		0.980		0.984		0.980		0.984
Child's educational expectations		**1.466*****		**1.450*****		**1.481*****		**1.482*****
Child's self-esteem		0.997		1.001		0.995		1.001
Child age	0.840	0.951	0.889	0.999	0.860	0.981	0.879	1.002
Child gender (male)								
Female	1.629 ψ	1.536	**1.692***	1.608 ψ	1.597 ψ	1.530	**1.692***	1.652 ψ
Child race (Non-African American, Non-Hispanic)								
African-American	1.375	1.221	1.375	1.219	1.644	1.475	1.770 ψ	1.552 ψ
Hispanic	0.935	0.984	1.069	1.116	1.011	1.089	1.016	1.087
Child cognitive ability								
PIAT Math	**1.051*****	**1.051*****	**1.049*****	**1.048*****	**1.045*****	**1.044*****	**1.048*****	**1.048*****
PIAT Reading Recognition	0.997	0.993	0.999	0.994	1.000	0.996	0.998	0.993
PIAT Reading Comprehension	**1.029***	1.026 ψ	**1.031***	1.027 ψ	**1.031***	**1.027***	**1.031***	**1.027***
School quality	**1.114****	**1.114****	**1.121****	**1.118****	**1.112****	**1.115****	**1.112****	**1.112****
Birth order	0.807	0.806	0.822	0.816	0.852	0.839	0.829	0.799
Family size	1.075	1.133	1.091	1.148	1.114	1.180	1.134	1.211 ψ
Mother's age	1.126 ψ	1.058	1.119 ψ	1.054	1.114 ψ	1.044	1.125 ψ	1.059
Mother's marital status (unmarried)								
Married	0.788	0.700	0.782	0.691	0.677	0.579 ψ	0.620	0.519 ψ
Mother's education (No high school)								
High school graduation	1.576	1.567	1.674	1.637	1.581	1.574	1.463	1.412
Some college	**3.489****	**3.355***	**3.929****	**3.636***	**3.404****	**3.384***	**3.003***	2.815 ψ
Residence (rural)								
Urban	1.096	1.209	1.158	1.269	1.155	1.287	1.155	1.314
Likelihood Ratio χ^2	197.067***	229.684***	206.848***	237.913***	210.713***	244.279***	223.273***	258.908***

Note: Figures for each variable are odds ratio. Category value in parentheses indicates a reference group, unless indicated otherwise. "Log" in parentheses indicates that the continuous measures are log-transformed. *** p<0.001, ** p<0.01, * p<0.05, ψ p<0.1

Table 2-4. College Degree Attainment (weighted)

	A		B		C		D	
	Model 7	Model 8	Model 7	Model 8	Model 7	Model 8	Model 7	Model 8
Income (log)	**2.692*** **	**2.447*** **	**2.587*** **	**2.302** **	**2.327** **	**2.057** **	**2.378** **	**2.058** **
Assets								
Net worth (log)			1.124	1.219				
Financial assets (log)					1.046	1.051	1.043	1.043
Non-financial assets (log)							**1.169***	**1.210***
Homeownership (1=yes)					1.592	1.860		
Liabilities								
Unsecured debts (log)					1.004	1.005	1.009	1.008
Secured debts (log)							0.931	0.941
Parental involvement in education		0.994		0.994		0.994		0.999
Child's educational expectations		**1.363*** **		**1.362*** **		**1.388*** **		**1.375*** **
Child's self-esteem		**1.095***		**1.098***		**1.098***		**1.105***
Child age	1.249	1.341	1.262	1.358	1.276	1.371 ψ	1.281	1.369
Child gender (male)								
Female	**3.590*** **	**3.642*** **	**3.568*** **	**3.620*** **	**3.605*** **	**3.783*** **	**3.539*** **	**3.765*** **
Child race (Non-African American, Non-Hispanic)								
African-American	1.188	1.016	1.199	1.032	1.369	1.199	1.383	1.189
Hispanic	0.597	0.632	0.620	0.645	0.637	0.665	0.634	0.667
Child cognitive ability								
PIAT Math	**1.047** **	**1.046** **	**1.046** **	**1.045***	**1.042***	**1.040***	**1.045***	**1.043***
PIAT Reading Recognition	0.981	0.974 ψ	0.982	0.974 ψ	0.983	0.974 ψ	0.982	0.973 ψ
PIAT Reading Comprehension	**1.030***	**1.029** ψ	**1.031***	**1.031***	**1.034***	**1.034***	**1.031***	**1.033***
School quality	**0.147***	**1.139***	**1.146***	**1.138***	**1.145***	**1.139***	**1.142***	**1.131***
Birth order	1.233	1.168	1.246	1.194	1.302	1.268	1.265	1.226
Family size	0.848	0.924	0.851	0.923	0.875	0.962	0.886	0.967
Mother's age	1.055	1.047	1.051	1.040	1.039	1.029	1.038	1.028
Mother's marital status (unmarried)								
Married	0.518 ψ	0.428*	0.513 ψ	**0.421***	**0.435***	**0.345** **	**0.421***	**0.319** **
Mother's education (No high school)								
High school graduation	**4.438***	**4.506***	**4.491***	**4.578***	**4.694***	**4.906***	**4.781***	**4.626***
Some college	**7.458** **	**6.262** **	**7.588** **	**6.405** **	**7.918** **	**6.727** **	**7.864** **	**6.038***
Residence (rural)								
Urban	0.603	0.592	0.616	0.610	0.634	0.641	0.614	0.604
Likelihood Ratio χ^2	117.940***	134.096***	118.726***	135.106***	120.174***	137.348***	123.818***	140.143***

Note: Figures for each variable are odds ratio. Category value in parentheses indicates a reference group, unless indicated otherwise. "Log" in parentheses indicates that the continuous measures are log-transformed. *** p<0.001, ** p<0.01, * p<0.05, ψ p<0.1